

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

**CASPER et al.**

Serial No.: **10/525,958**

Group Art Unit: **2873**

Filed: **October 20, 2005**

Examiner: **DAWAYNE A. PINKNEY**

For: **A DEVICE FOR THE PREVENTION OF MELATONIN SUPPRESSION  
BY LIGHT AT NIGHT**

**DECLARATION OF SHADAB ATAUR RAHMAN**

Honorable Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

I, Shadab Ataur Rahman, hereby declare as follows:

1. I am a citizen of Canada residing at 4795 Bloomburg Drive, Mississauga, Ontario L5M 7K4, Canada.
2. I am a graduate student working with Robert Casper, one of the inventors of United States Patent Application 10/525,958 (the "Application"). My credentials in this subject area are demonstrated by my CV which is attached as **Exhibit A**. I am familiar with and have read the contents of the Application, the Office Action dated February 19, 2008 and the references cited in the Office Action.
3. According to the Examiner of the Application, United States patent 5,400,175 ("Johansen") disclosed a device for inhibiting melatonin suppressing light and discloses

the claimed invention except for selectively blocking more than 50% of incident wavelengths of light and transmitting more than 50% of non-blocked wavelengths of light. On behalf of the inventors, I performed the experiment detailed below, in order to demonstrate that Johansen does not teach a device for inhibiting melatonin suppressing light.

4. A pair of sunglasses sold by Eagle Eyes were purchased. I attach as **Exhibit B** a copy of the panels of the box from the purchased Eagle Eyes glasses, which makes reference to the Johansen patent. These glasses represent a commercial embodiment of the glasses taught in Johansen, as shown by the transmission curve generated for these glasses and attached as **Exhibit C**. These glasses will be referred to below as the "Eagle Eyes glasses". The Eagle Eyes glasses were ordered via email. A copy of the order and the invoice for the shipped Eagle Eyes glasses are enclosed as **Exhibits D** and **E**, respectively.
5. The Eagle Eyes transmission curve in **Exhibit C** is similar to the transmission curves of Figure 1 of Johansen: the Eagle Eyes have less than 50% transmission of all wavelengths of light. The transmission curve of the Applicants' glasses is also shown in **Exhibit C** (labelled Zircadium).
6. The objective of the experiment performed was to determine if filtering ultraviolet (UV) and blue light during the day as taught by Johansen can increase melatonin secretion above basal levels, as observed under darkness at night and, furthermore, to evaluate if filtering UV and blue light during the day can cause a second circadian peak in melatonin secretion after the first peak during darkness at night.
7. Three male individuals (average age = 26.7 years) were recruited for the study. All three individuals had similar sleep habits and professional careers (average bedtime: 2230 hours ("h"); awake time: 0630 h). None of the individuals were color blind and had no medical history of ocular disease and were not on any medication for any other forms of disease. To test the circadian secretion profile of melatonin over 24 h, all three individuals were maintained in a dark room (total darkness) from 2000 h to 0800 h to induce melatonin secretion and then kept in a well lit environment between 0800 h to

2000 h to evaluate the effects of daytime light exposure on melatonin secretion. The same individuals wore commercially available Eagle Eyes glasses continuously between 1000 h and 1400 h to evaluate if filtering UV and blue light from day light can increase melatonin secretion higher than basal levels.

8. Spectral transmission of Eagle Eyes glasses are shown in comparison to Zircadium optical filters in **Exhibit C**. Optical transmission was measured using a NIST calibrated spectroradiometer (Apogee Instruments, USA) and fluorescent light source. During the day (0800 h to 2000 h) individuals were exposed to a combination of natural sunlight and fluorescent lighting in the room (Mean Intensity: 846 Lux). Food intake was controlled during the 24 h duration of the study. Dinner was completed on the first night of the study at 1930 h following which individuals only drank water after each sampling. Samples were collected every 2 h starting from 2000 h in 5 ml polypropylene tubes. Participants were allowed to sleep during the night (2000 h to 0800 h). However, before each sampling participants were awoken 10 mins prior and saliva collected in a supine position to minimize the effect of posture on hormone secretion. Breakfast was provided at 0800 h after the sampling was completed at that point. Lunch was provided at 1200 h and snacks were provided at 1600 h. Only water was allowed to be drunk, but not 30 mins before a sampling since it could dilute saliva samples. No other drinks, citrus fruits, caffeinated beverages were permitted. Samples were collected and immediately stored in a -20°C freezer. All samples were frozen to ensure equal treatment. Samples were then assayed for melatonin using a commercially available Enzyme Linked Immunosorbent Assay (Alpco Diagnostics, USA) as per manufacturer recommendations.
9. Melatonin secretion showed a robust circadian profile over 24 h. Only one major peak was observed at night under darkness. No secondary peaks were observed during the day. Accordingly, filtering UV and blue light from daylight does not promote melatonin secretion. Wearing blue blocking sunglasses during the day will not inhibit melatonin suppression. The results of this study are shown graphically in **Exhibit F**.

10. I further enclose as **Exhibit G** a copy of a brochure regarding Eagle Eyes glasses which specifically warns against wearing the Eagle Eyes glasses at night (relevant portion highlighted).
11. I further enclose as **Exhibit H** a photograph of the Eagle Eyes glasses tested and a pair of sunglasses of the present invention (see **Exhibit C** for transmission profile), which demonstrates the different visual appearance of the two pairs of glasses, which reflects the different utility of the glasses.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such wilful false statements may jeopardize the validity of the application or any patents issuing thereon.

Date: Aug 18<sup>th</sup> 2005

  
SHADAB ATAUR RAHMAN